ΓΚΙΡΕΜΕΖΗ ΣΠΥΡΙΔΟΥΛΑ

**2018**

**1η Εργασία Πληροφορικής WORD**

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# Ecology

## From Wikipedia, the free encyclopedia

Ecology (from Greek: οἶκος, "house", or "environment"; -λογία, "study of") is the branch of biology which studies the interactions among organisms and their environment. Objects of study include interactions of organisms with each other and with abiotic components of their environment. Topics of interest include the biodiversity, distribution, biomass, and populations of organisms, as well as cooperation and competition within and between species. Ecosystems are dynamically interacting systems of organisms, the communities they make up, and the non-living components of their environment. Ecosystem processes, such as primary production, pedogenesis, nutrient cycling, and niche construction, regulate the flux of energy and matter through an environment. These processes are sustained by organisms with specific life history traits. Biodiversity means the varieties of species, genes, and ecosystems, enhances certain ecosystem services.

Ecology is not synonymous with environmentalism, natural history, or environmental science. It overlaps with the closely related sciences of evolutionary biology, genetics, and ethology. An important focus for ecologists is to improve the understanding of how biodiversity affects ecological function. Ecologists seek to explain: Life processes, interactions, and adaptations The movement of materials and energy through living communities environment.

Ecology has practical applications in conservation biology, wetland management, natural resource management (agroecology, agriculture, forestry, agroforestry, fisheries), city planning (urban ecology), community health, economics, basic and applied science, and human social interaction (human ecology). For example, the Circles of Sustainability approach treats ecology as more

The successional development of ecosystems

The  abundance  and distribution of organisms and biodiversity in the context of the than the environment 'out there'. It is not treated as separate from humans. Organisms (including humans) and resources compose ecosystems which, in turn, maintain biophysical feedback mechanisms that moderate processes acting on living (biotic) and non-living (abiotic) components of the planet. Ecosystems sustain life-supporting functions and produce natural capital like biomass production (food, fuel, fiber, and medicine), the regulation of climate, global biogeochemical cycles, water filtration, soil formation, erosion control, flood protection, and many other natural features of scientific, historical, economic, or intrinsic value.

The word "ecology" ("Ökologie") was coined in 1866 by the German scientist Ernst Haeckel. Ecological thought is derivative of established currents in philosophy, particularly from ethics and politics. Ancient Greek philosophers such as Hippocrates and Aristotle laid the foundations of ecology in their studies on natural history. Modern ecology became a much more rigorous science in the late 19th century. Evolutionary concepts relating to adaptation and natural selection became the cornerstones of modern ecological theory.

Ecosystem

## From Wikipedia, the free encyclopedia

This article is about natural ecosystems. For the term used in man-made systems, see Digital ecosystem. An ecosystem is a community made up of living organisms and nonliving components such as air, water and mineral soil, all interacting as a system. (However, ecosystems can be defined in many ways.) The biotic and abiotic components interact through nutrient cycles and energy flows. Ecosystems are the network of interactions among organisms, and between organisms and their environment. Ecosystems can be of any size but one ecosystem has a specific, limited space. On a larger scale, some scientists view the entire planet as one ecosystem).

Energy, water, nitrogen and soil minerals are other essential abiotic components of an ecosystem. The energy that flows through ecosystems comes primarily from the sun, through photosynthesis. Photosynthesis also captures carbon dioxide from the atmosphere. Animals also play an important role in the movement of matter and energy through ecoystems. They influence the amount plant and microbial biomass that lives in the system. As organic matter dies, decomposers release carbon back to the atmosphere. This process also facilitates nutrient cycling by converting nutrients stored in dead biomass back to a form that can be used again by plants and other microbes.

Ecosystems are controlled both by external and internal factors. External factors such as climate, the parent material that forms the soil, topography and time have a big impact on ecosystems, but they are not themselves influenced by the ecosystem. Ecosystems are dynamic: they are subject to periodic disturbances and are in the process of recovering from past disturbances that were external to the ecosystem. Internal factors are different. They not only control ecosystem processes but are also controlled by them. Internal factors are subject to feedback loops.

Humans operate within ecosystems and the cumulative effects of human activities can influence even external factors. Climate change is an example of that cumulative impact. Ecosystems provide benefits--called Ecosystem services--which people depend on and can disrupt to their own detriment. Best practices of Ecosystem management suggests that it's better to manage at the ecosystem level, rather than trying to managing individual species.

# Chemical ecology

## From Wikipedia, the free encyclopedia

Chemical ecology examines the role of chemical interactions between living organisms and their environment, as the consequences of those interactions on the ethology and evolution of the organisms involved. It is thus a vast and highly interdisciplinary field.  Chemical ecology studies focuses on the biochemistry of ecology and the specific molecules or groups of molecules termed semiochemicals that function as signals to initiate, modulate, or terminate a variety of biological processes such as metabolism. Molecules that serve in such roles typically are readily diffusible organic substances of low molecular mass that derive from secondary metabolic pathways, but also include peptides and other natural products.[citation needed] Chemical ecological processes mediated by semiochemicals include ones that are intraspecific (occurring within a species) or that are interspecific (occurring between species). A variety of functional subtypes of signals are known, including pheromones, allomones, kairomones, and attractants and repellents.[citation needed] It can sometimes be hard to differentiate from other biological fields and may require many disciplines working together in a study.

**Class Schedule**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| LESSON |  | TOPIC |  | ASSIGNMENT |  | Points |  | DUE |
| 1 |  | What is Distance Learning? |  | Wiki #1 |  | 10 |  | March 10 |
|  | Presentation |  | 20 |  |  |
| 2 |  | History & Theories |  | Brief Papper |  | 20 |  | March 24 |
|  | |  | | Spring Break | |  | |  |
| 3 |  | Distance Learners |  | Discussion #1 |  | 10 |  | April 7 |
|  | Group project |  | 50 |  | April 14 |
| 4 |  | Media Selection |  | Blog #1 |  | 10 |  | April 21 |

# http://www.springboardmagazine.com/SpringImages/lifecycle_apple.gifEcological psychology

## From Wikipedia, the free encyclopedia

Ecological psychology is a term claimed by several schools of psychology with the main one involving the work of James J. Gibson and his associates, and another one the work of Roger G. Barker, Herb Wright and associates at the University of Kansas in Lawrence. Whereas Gibsonian psychology is always termed ecological psychology, the work of Barker (and his followers) is also sometimes referred to as environmental psychology. There is some overlap between the two schools, although the Gibsonian approach is more philosophical and deeply reflective on its predecessors in the history of psychology.Both schools emphasise 'real world' studies of behaviour as opposed to the artificial environment of the laboratory.

## Barker

Barker's work was based on his empirical work at the Midwest Field Station. He wrote later: "The Midwest Psychological Field Station was established to facilitate the study of human behavior and its environment in situ by bringing to psychological science the kind of opportunity long available to biologists: easy access to phenomena of the science unaltered by the selection and preparation that occur in laboratories." (Barker, 1968). The study of environmental units (behavior settings) grew out of this research. In his classic work "Ecological Psychology" (1968) he argued that human behaviour was radically situated: in other words, you couldn't make predictions about human behaviour unless you know what situation or context or environment the human in question was in. For example, there are certain behaviours appropriate to being in church, attending a lecture, working in a factory etc., and the behaviour of people in these environments is more similar than the behaviour of an individual person in different environments. He has since developed these theories in a number of books and articles.

Gibson.

James J. Gibson, too, stressed the importance of the environment, in particular, the

direct) perception of how the environment of an organism affords various actions to the organism. Thus, an appropriate analysis of the environment was crucial for an explanation of perceptually guided behaviour. He argued that animals and humans stand in a 'systems' or 'ecological' relation to the environment, such that to adequately explain some behaviour it was necessary to study the environment or niche in which the behaviour took place and, especially, the information that 'epistemically connects' the organism to the environment.

It is Gibson's emphasis that the foundation for perception is ambient, ecologically available information – as opposed to peripheral or internal sensations – that makes Gibson's perspective unique in perceptual science in particular and cognitive science in general. The aphorism: "Ask not what's inside your head, but what your head's inside of" captures that idea. Gibson's theory of perception is information-based rather than sensation-based and to that extent, an analysis of the environment (in terms of affordances), and the concomitant specificational information that the organism detects about such affordances, is central to the ecological approach to perception. Throughout the 1970s and up until his death in 1979, Gibson increased his focus on the environment through development of the theory of affordances - the real, perceivable opportunities for action in the environment, that are specified by ecological information.

Gibson rejected outright indirect perception, in favour of ecological realism, his new form of direct perception that involves the new concept of ecological affordances. He also rejected the emerging constructivist, information processing and cognitivist views that assume and emphasize internal representation and the processing of meaningless, physical sensations ('inputs') in order to create meaningful, mental perceptions ('output'), all supported and implemented by a neurological basis (inside the head).

His approach to perception has often been criticised and dismissed when compared to widely publicised advances made in the fields of neuroscience and visual perception by the computational and cognitive approaches.

However, developments in cognition studies which consider the role of embodied cognition and action in psychology can be seen to support his basic position.

Given that Gibson's tenet was that "perception is based on information, not on sensations", his work and that of his contemporaries today can be seen as crucial for keeping prominent the primary question of what is perceived (i.e., affordances, via information) – before questions of mechanism and material implementation are considered. Together with a contemporary emphasis on dynamical systems theory and complexity theory as a necessary methodology for investigating the structure of ecological information, the Gibsonian approach has maintained its relevance and applicability to the larger field of cognitive scie

# Industrial ecology

## From Wikipedia, the free encyclopedia

Industrial ecology (IE) is the study of material and energy flows through industrial systems. The global industrial economy can be modelled as a network of industrial processes that extract resources from the Earth and transform those resources into commodities which can be bought and sold to meet the needs of humanity. Industrial ecology seeks to quantify the material flows and document the industrial processes that make modern society function. Industrial ecologists are often concerned with the impacts that industrial activities have on the environment, with use of the planet's supply of natural resources, and with problems of waste disposal. Industrial ecology is a young but growing multidisciplinary field of research which combines aspects of engineering, economics, sociology, toxicology and the natural sciences.

Industrial ecology has been defined as a "systems-based, multidisciplinary discourse that seeks to understand emergent behaviour of complex integrated human/natural systems". The field approaches issues of sustainability by examining problems from multiple perspectives, usually involving aspects of sociology, the environment, economy and technology. The name comes from the idea that the analogy of natural systems should be used as an aid in understanding how to design sustainable industrial systems.

## Overview

Industrial ecology is concerned with the shifting of industrial process from linear (open loop) systems, in which resource and capital investments move through the system to become waste, to a closed loop system where wastes can become inputs for new processes.

Much of the research focuses on the following areas:

material and energy flow studies ("industrial metabolism")

dematerialization and decarbonization

technological change and the environment

life-cycle planning, design and assessment

design for the environment ("eco-design")

extended producer responsibility ("product stewardship")

eco-industrial parks ("industrial symbiosis")

product-oriented environmental policy

eco-efficiency

Industrial ecology seeks to understand the way in which industrial systems (for example a factory, an ecoregion, or national or global economy) interact with the biosphere. Natural ecosystems provide a metaphor ecology.for understanding how different parts of industrial systems interact with one another, in an "ecosystem" based on resources and infrastructural capital rather than on natural capital. It seeks to exploit the idea that natural systems do not have waste in them to inspire sustainable design.

Along with more general energy conservation and material conservation goals, and redefining commodity markets and product stewardship relations strictly as a service economy, industrial ecology is one of the four objectives of Natural Capitalism. This strategy discourages forms of amoral purchasing arising from ignorance of what goes on at a distance and implies a political economy that values natural capital highly and relies on more instructional capital to design and maintain each unique industrial.

**«Η ΟΙΚΟΓΕΝΕΙΑ ΜΟΥ»**